In the Claims:

1-18. (Canceled)

19. (Currently Amended) An apparatus, comprising:

a wireless communication device coupled to a sinusoidal-shaped wave antenna comprised of at least one sinusoidal-shaped conductor that operates at a first operating frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire ~~to detect environmental information inside said tire~~ and wherein said wireless communication device wirelessly ~~communicate~~ communicates ~~the environmental~~ information relating to said tire.

20. (Currently Amended) The apparatus of claim 19, wherein said ~~environmental~~ information is comprised from the group consisting of pressure inside said tire and temperature inside said tire.

21. (Original) The apparatus of claim 19, wherein said tire comprises:

an outer surface, comprising:

a circular-shaped tread surface having a left outer side and a right outer side and an orifice; and

said left outer side and said right outer side each fold down at an angle substantially perpendicular to said tread surface to form a left outer wall and a right outer wall substantially perpendicular to said tread surface and to form a left inner wall and a right inner wall attached substantially perpendicular to a internal wall on the opposite side of said tread surface; and

wherein said wireless communication device is attached to a wall inside said tire comprised from the group consisting of said left inner wall, said right inner wall, and said internal wall.

22. (Original) The apparatus of claim 19, wherein said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

23. (Original) The apparatus of claim 22, wherein said sinusoidal-shaped wave antenna operates at a second operating frequency when said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

24. (Original) The apparatus of claim 19, further comprising a resonating ring coupled to said sinusoidal-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

25. (Original) The apparatus of claim 21, wherein said resonating ring is capacitively coupled to said sinusoidal-shaped wave antenna.

26. (Original) The apparatus of claim 25, wherein said resonating ring is additionally coupled to said wireless communication device so that the pressure placed on said sinusoidal-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

27. (Original) The apparatus of claim 21, wherein said tread surface is comprised out of rubber having a thickness wherein said sinusoidal-shaped wave antenna is contained inside said rubber.

28. (Original) The apparatus of claim 21, wherein said tread surface is comprised out of rubber having a thickness wherein said wireless communication device is contained inside said rubber.

29. (Original) The apparatus of claim 21, wherein said sinusoidal-shaped wave antenna is contained inside said rubber.

30. (Original) The apparatus of claim 28, wherein said tread surface contains an inner steel belt inside said rubber wherein said sinusoidal-shaped wave antenna is coupled to said inner steel belt.

31. (Original) The apparatus of claim 30, wherein said coupling of said sinusoidal-shaped wave antenna to said inner steel belt is comprised from the group consisting of direct coupling, capacitive coupling, and reactive coupling.

32. (Original) The apparatus of claim 31, wherein said sinusoidal-shaped wave antenna is contained inside said tread surface.

33. (Original) The apparatus of claim 31, wherein said wireless communication device is contained inside said tread surface.

34. (Original) The apparatus of claim 33, wherein said sinusoidal-shaped wave antenna is contained inside said tread surface.

35. (Currently Amended) The apparatus of claim 19, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as ~~environmental~~ said information.

36. (Currently Amended) The apparatus of claim 19, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as ~~environmental~~ said information.

37. (Currently Amended) The apparatus of claim 36, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can

wirelessly communicate the pressure and the temperature inside said tire as ~~environmental~~ said information.

38. (Original) The apparatus of claim 19, wherein said at least one sinusoidal-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

39. (Original) The device of claim 19, wherein said at least one sinusoidal-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

40. (Currently Amended) A system for wirelessly communicating information about a tire, comprising:

an interrogation reader;

a wireless communication device coupled to a sinusoidal-shaped wave antenna comprised of at least one sinusoidal-shaped conductor that operates at a first frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire ~~to detect environmental information inside said tire~~ and wherein said wireless communication device wirelessly ~~communicate~~ communicates ~~the environmental~~ information relating to said tire to said interrogation reader.

41. (Currently Amended) The system of claim 40, wherein said information is ~~environmental information~~ comprised from the group consisting of pressure inside said tire and temperature inside said tire.

42. (Original) The system of claim 40, wherein said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

43. (Original) The system of claim 42, wherein said sinusoidal-shaped wave antenna operates at a operating frequency that is compatible with said interrogation reader when said sinusoidal-shaped wave antenna expands when said tire is placed under a threshold pressure.

44. (Original) The system of claim 42, wherein said sinusoidal-shaped wave antenna operates at a second operating frequency when said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

45. (Original) The system of claim 40, further comprising a resonating ring coupled to said sinusoidal-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

46. (Original) The system of claim 45, wherein said resonating ring is capacitively coupled to said sinusoidal-shaped wave antenna.

47. (Original) The system of claim 46, wherein said resonating ring is additionally coupled to said wireless communication device so that pressure placed on said sinusoidal-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

48. (Currently Amended) The system of claim 40, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as ~~environmental~~ said information to said interrogation reader.

49. (Currently Amended) The system of claim 40, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as ~~environmental~~ said information to said interrogation reader.

50. (Currently Amended) The system of claim 49, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly

communicate the pressure and the temperature inside said tire as ~~environmental~~ said information to said interrogation reader.

51. (Currently Amended) The system of claim 40, wherein said interrogation reader communicates the ~~environmental~~ information to a reporting system.

52. (Currently Amended) The system of claim 51, wherein said reporting system further communicates the ~~environmental~~ information to a remote system.

53. (Currently Amended) The system of claim 40, wherein said interrogation reader communicates the ~~environmental~~ information to a remote system.

54. (Original) The system of claim 40, wherein said at least one sinusoidal-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

55. (Original) The system of claim 40, wherein said at least one sinusoidal-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

56-97. (Canceled)

98. (Currently Amended) An apparatus, comprising:

a wireless communication device coupled to a semi-circle-shaped wave antenna comprised of at least one semi-circle-shaped conductor that operates at a first operating frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire ~~to detect environmental information inside said tire~~ and wherein said wireless communication device wirelessly ~~communicate~~ communicates ~~the environmental~~ information relating to said tire.

99. (Currently Amended) The apparatus of claim 98, wherein said ~~environmental~~ information is comprised from the group consisting of pressure inside said tire and temperature inside said tire.

100. (Original) The apparatus of claim 98, wherein said tire comprises:

an outer surface, comprising:

a circular-shaped tread surface having a left outer side and a right outer side and an orifice; and

said left outer side and said right outer side each fold down at an angle substantially perpendicular to said tread surface to form a left outer wall and a right outer wall substantially perpendicular to said tread surface and to form a left inner wall and a right inner wall attached substantially perpendicular to a internal wall on the opposite side of said tread surface; and

wherein said wireless communication device is attached to a wall inside said tire comprised from the group consisting of said left inner wall, said right inner wall, and said internal wall.

101. (Original) The apparatus of claim 98, wherein said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

102. (Original) The apparatus of claim 101, wherein said semi-circle-shaped wave antenna operates at a second operating frequency when said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

103. (Original) The apparatus of claim 98, further comprising a resonating ring coupled to said semi-circle-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

104. (Original) The apparatus of claim 100, wherein said resonating ring is capacitively coupled to said semi-circle-shaped wave antenna.

105. (Original) The apparatus of claim 104, wherein said resonating ring is additionally coupled to said wireless communication device so that the pressure placed on said semi-circle-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

106. (Original) The apparatus of claim 100, wherein said tread surface is comprised out of rubber having a thickness wherein said semi-circle-shaped wave antenna is contained inside said rubber.

107. (Original) The apparatus of claim 100, wherein said tread surface is comprised out of rubber having a thickness wherein said wireless communication device is contained inside said rubber.

108. (Currently Amended) The apparatus of claim ~~21001~~ 107, wherein said semi-circle-shaped wave antenna is contained inside said rubber.

109. (Original) The apparatus of claim 107, wherein said tread surface contains an inner steel belt inside said rubber wherein said semi-circle-shaped wave antenna is coupled to said inner steel belt.

110. (Original) The apparatus of claim 109, wherein said coupling of said semi-circle-shaped wave antenna to said inner steel belt is comprised from the group consisting of direct coupling, capacitive coupling, and reactive coupling.

111. (Original) The apparatus of claim 110, wherein said semi-circle-shaped wave antenna is contained inside said tread surface.

112. (Original) The apparatus of claim 110, wherein said wireless communication device is contained inside said tread surface.

113. (Original) The apparatus of claim 112, wherein said semi-circle-shaped wave antenna is contained inside said tread surface.

114. (Currently Amended) The apparatus of claim 98, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as ~~environmental~~ said information.

115. (Currently Amended) The apparatus of claim 98, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as ~~environmental~~ said information.

116. (Currently Amended) The apparatus of claim 115, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure and the temperature inside said tire as ~~environmental~~ said information.

117. (Original) The apparatus of claim 98, wherein said at least one semi-circle-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

118. (Original) The device of claim 98, wherein said at least one semi-circle-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

119. (Currently Amended) A system for wirelessly communicating information about a tire, comprising:

an interrogation reader;

a wireless communication device coupled to a semi-circle-shaped wave antenna comprised of at least one semi-circle-shaped conductor that operates at a first frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire ~~to detect environmental information inside said tire~~ and wherein said wireless communication device wirelessly ~~communicate~~ communicates ~~the environmental~~ information relating to said tire to said interrogation reader.

120. (Currently Amended) The system of claim 119, wherein said information is ~~environmental~~ information comprised from the group consisting of pressure inside said tire and temperature inside said tire.

121. (Original) The system of claim 119, wherein said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

122. (Original) The system of claim 121, wherein said semi-circle-shaped wave antenna operates at a operating frequency that is compatible with said interrogation reader when said semi-circle-shaped wave antenna expands when said tire is placed under a threshold pressure.

123. (Original) The system of claim 121, wherein said semi-circle-shaped wave antenna operates at a second operating frequency when said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

124. (Original) The system of claim 119, further comprising a resonating ring coupled to said semi-circle-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

125. (Original) The system of claim 124, wherein said resonating ring is capacitively coupled to said semi-circle-shaped wave antenna.

126. (Original) The system of claim 125, wherein said resonating ring is additionally coupled to said wireless communication device so that pressure placed on said semi-circle-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

127. (Currently Amended) The system of claim 119, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as ~~environmental~~ said information to said interrogation reader.

128. (Currently Amended) The system of claim 119, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as ~~environmental~~ said information to said interrogation reader.

129. (Currently Amended) The system of claim 128, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure and the temperature inside said tire as ~~environmental~~ said information to said interrogation reader.

130. (Currently Amended) The system of claim 119, wherein said interrogation reader communicates the ~~environmental~~ information to a reporting system.

131. (Currently Amended) The system of claim 130, wherein said reporting system further communicates the ~~environmental~~ information to a remote system.

132. (Currently Amended) The system of claim 119, wherein said interrogation reader communicates the ~~environmental~~ information to a remote system.

133. (Original) The system of claim 119, wherein said at least one semi-circle-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

134. (Original) The system of claim 119, wherein said at least one semi-circle-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

135-158. (Canceled)